

CLAIMS

1. An adeno-associated virus vector capable of expressing a peptide fragment containing a humoral immunity induction site of the  $\beta$ -amyloid peptide, comprising DNA encoding said peptide fragment in an operative form.
2. The adeno-associated virus vector according to claim 1, wherein said peptide fragment comprises amino acids 4 to 10 of the  $\beta$ -amyloid peptide.
3. The adeno-associated virus vector according to claim 1, wherein said peptide fragment comprises amino acids 4 to 10 of the amino acid sequence as shown in SEQ ID NO: 2.
4. The adeno-associated virus vector according to claim 1, wherein the DNA encoding said peptide fragment comprises the nucleotides 10 to 30 of the nucleotide sequence as shown in SEQ ID NO: 1.
5. The adeno-associated virus vector according to claim 1, wherein said peptide fragment comprises amino acids 1 to 43 of the  $\beta$ -amyloid peptide.
6. The adeno-associated virus vector according to claim 1, wherein said peptide fragment comprises the amino acid sequence as shown in SEQ ID NO: 2.
7. The adeno-associated virus vector according to claim 1, wherein the DNA encoding said peptide fragment comprises the nucleotide sequence as shown in SEQ ID NO: 1.
8. The adeno-associated virus vector according to claim 1, wherein said peptide fragment comprises amino acids 1 to 21 of the  $\beta$ -amyloid peptide.
9. The adeno-associated virus vector according to claim 1, wherein said peptide fragment comprises amino acid sequence as shown in SEQ ID NO: 4.
10. The adeno-associated virus vector according to claim 1, wherein the DNA encoding said peptide fragment comprises the nucleotide sequence as shown in SEQ ID NO: 3.
11. The adeno-associated virus vector according to claim 1, further comprising DNA encoding a signal peptide capable of

extracellularly secreting said peptide fragment, in an operative form.

12. The adeno-associated virus vector according to claim 11, wherein said signal peptide is a signal peptide of amyloid precursor protein.

13. The adeno-associated virus vector according to claim 11, wherein said signal peptide comprises the amino acid sequence as shown in SEQ ID NO: 6.

14. The adeno-associated virus vector according to claim 11, wherein the DNA encoding said signal peptide comprises the nucleotide sequence as shown in SEQ ID NO: 5.

15. A pharmaceutical composition for treating Alzheimer's disease, comprising the adeno-associated virus vector of any of claims 1 to 14.

16. A pharmaceutical composition according to claims 15 for oral administration.

17. A method for treating Alzheimer's disease, comprising administering the adeno-associated virus vector of any one of claims 1 to 14 in a therapeutically effective amount to a subject.

18. Use of the adeno-associated virus vector of any one of claims 1 to 14 for the manufacture of therapeutic agents for Alzheimer's disease.